

**Strategic Analysis Framework Initiative
(SAFI): An Integrated Quantitative
Understanding of California's Water to
Support Future Decision-Making**

Jay Lund

Public Comments

No public comments were received for this proposal.

Technical Synthesis Panel Review

Proposal Title

#0277: Strategic Analysis Framework Initiative (SAFI): An Integrated Quantitative Understanding of California's Water to Support Future Decision-Making

Final Panel Rating
inadequate

Technical Synthesis Panel (Primary) Review

TSP Primary Reviewer's Evaluation Summary And Rating:

Summary: This project proposes to develop an integrated framework for data collection and analysis of state water supply systems. The primary products would be a warehouse of fundamental databases, integrated analysis framework, and common forum for facilitating collaboration and systems analysis. The overall objectives are important and timely, but the proposed framework is too generic, lacking justification of specific data needs and identification of likely analytical tools that would be used for systems analysis. The proposed work is basically a vehicle for answering these questions based on community/user input, but is nevertheless too vague for reviewer assessment. The actual product, value, and potential for success are all uncertain. A potential alternative is for CALFED to commission a directed contract to develop this framework, rather than its current submission as a scientific research proposal (i.e., it does not fit a hypothesis-driven method of investigative study). The technical reviewers rated this proposal as very good, fair, and excellent. However, the first and third reviews were discarded because they were non-critical and had little useful substance. The remaining review agrees with the ranking given here (inadequate). **Goals:** Project goals and objectives are clearly stated in general terms (develop a common framework

#0277: Strategic Analysis Framework Initiative (SAFI): An Integrated Quantita...

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for data collection and analysis for the state water supply system), but more specific goals and objectives are unclear and are needed for proposal assessment. Justification: The project is justified in terms of the need for a more integrated, quantitative approach for water management. The investigators argue that the current system is fragmented, outdated, and uses various models and databases that impede transferability and integrated system analysis and planning. However, more specific details of the likely types of data, models, and system integration are needed to justify the project. The authors describe the initial databases ("quantification of water demands, water management facilities, water supplies, and some aspects of water quality", p. 8), but it is unclear why these databases were selected and how they will be used in the authors' analytical framework (i.e., for what purpose and value?). Approach: The approach is an action list that describes how one would construct a general framework for coordinated data collection and analysis, but is too generic to be able to assess the actual value and use of the project by decision makers. Feasibility: The project is do-able, but the likelihood of success is uncertain due to lack of more specific details and goals of the analysis framework, as discussed above. Monitoring: Not applicable. Products: Primary products would be a warehouse of key databases, integrated analysis framework, and common forum for facilitating collaboration and systems analysis. These are worthwhile and valuable products, but specific details at all levels are lacking as discussed above, making the actual product and value uncertain. Capabilities: The PIs are highly qualified for this type of work and have an existing network of organizations through CWEMF that will facilitate development of the proposed integrative framework. Budget: The budget is reasonable, but some items need further justification/narrative (e.g., salaries and software as identified by Reviewer 2).

Additional Comments:

Summary: This project proposes to develop an integrated framework for data collection and analysis of state water

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supply systems. The primary products would be a warehouse of fundamental databases, integrated analysis framework, and common forum for facilitating collaboration and systems analysis. The overall objectives are important and timely, but the proposed framework is too generic, lacking justification of specific data needs and identification of likely analytical tools that would be used for systems analysis. The proposed work is basically a vehicle for answering these questions based on community/user input, but is nevertheless too vague for reviewer assessment. The actual product, value, and potential for success are all uncertain. A potential alternative is for CALFED to commission a directed contract to develop this framework, rather than its current submission as a scientific research proposal (i.e., it does not fit a hypothesis-driven method of investigative study). The technical reviewers rated this proposal as very good, fair, and excellent. However, the first and third reviews were discarded because they were non-critical and had little useful substance. The remaining review agrees with the ranking given here (inadequate). Goals: Project goals and objectives are clearly stated in general terms (develop a common framework for data collection and analysis for the state water supply system), but more specific goals and objectives are unclear and are needed for proposal assessment. Justification: The project is justified in terms of the need for a more integrated, quantitative approach for water management. The investigators argue that the current system is fragmented, outdated, and uses various models and databases that impede transferability and integrated system analysis and planning. However, more specific details of the likely types of data, models, and system integration are needed to justify the project. The authors describe the initial databases ("quantification of water demands, water management facilities, water supplies, and some aspects of water quality", p. 8), but it is unclear why these databases were selected and how they will be used in the authors' analytical framework (i.e., for what purpose and value?). Approach: The approach is an action list that describes how one would construct a general framework for coordinated data collection and analysis, but is too generic to be able to assess the actual value and use of the project by decision makers.

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Feasibility: The project is do-able, but the likelihood of success is uncertain due to lack of more specific details and goals of the analysis framework, as discussed above.

Monitoring: Not applicable. **Products:** Primary products would be a warehouse of key databases, integrated analysis framework, and common forum for facilitating collaboration and systems analysis. These are worthwhile and valuable products, but specific details at all levels are lacking as discussed above, making the actual product and value uncertain.

Capabilities: The PIs are highly qualified for this type of work and have an existing network of organizations through CWEMF that will facilitate development of the proposed integrative framework. **Budget:** The budget is reasonable, but some items need further justification/narrative (e.g., salaries and software as identified by Reviewer 2).

Technical Synthesis Panel (Discussion) Review

TSP Observations, Findings And Recommendations:

The goals of this proposal are laudable. All three external reviewers praised the capabilities of the PIs and indicated that they are well-qualified for the proposed project. The panel identified conflicts among the external technical evaluations. For example, two of the reviewers rated the goals as excellent while the third gave it a good rating, stating that that the goals and objectives are "present" but could be clarified or presented in more detail. The three reviews rate the justification as excellent or very good. The first two reviewers rated the approach as excellent or very good while the third gave it a poor, again stating that not enough detail is given. Also, this reviewer rated the feasibility as fair in contrast to the other two reviewers: "The proposal lacks the documentation, technical structures, and detailed methodology to adequately assess the feasibility of the project." The third reviewer rates the products as very good (similar to excellent ratings from other two reviewers) but then goes on to state, "...the utility of the products is uncertain." The panel believed that the framework, as proposed, is too generic to evaluate as a science project. It lacks essential components of a scientific proposal - no hypotheses, no

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predictions, no research plan, and no conceptual model. The panel believed the project should be conducted but that this Science PSP was the inappropriate venue for funding.

Technical Review #1

proposal title: Strategic Analysis Framework Initiative (SAFI): An Integrated Quantitative Understanding of California's Water to Support Future Decision-Making

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	The goal to "provide all agencies and analysts with a common, integrated quantitative understanding of California's water supply system" is certainly ambitious. The proposal is internally consistent and focused on achieving this goal. The need for mutually agreed to, expandable and upgradeable, frameworks for data is very timely and extremely important.
Rating	excellent

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Comments	The need for this type of project is well justified. The applicants clearly have a well-defined conceptual model and approach for the project. It is unclear if the project may be better suited as a pilot or demonstration project. The project's 5-10 year time frame to have foundation for data and modeling work is a significant concern. Could a smaller scale demonstration project achieve results and more user/funder buy in quicker? This is certainly a dilemma with major trade offs to either approach but should have been better addressed in the proposal.
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Technical Review #1

Rating	excellent
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Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	In general, the applicants propose a sound approach. However, their reference to business models used by Southwest Airlines and Dell shows a fundamental misunderstanding of the nature of dealing with diverse governments, agencies and stakeholders as well as defuse funding sources (the ultimate users and funders of this framework). Unlike the business scenario, to a greater or lesser degrees each user/funder has a different primary mission, different types of data and different levels of funding to contribute to this framework. The applicants would be well served to explore different framework paradigms.
Rating	very good

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	The approach is fully documented and technically feasible. The framework development certainly has scientific challenges. However, it seems that this type of framework might be better procured by a contract than a grant so that the initial funders will have the type of business accountability that the applicants aspire to.
Rating	very good

Technical Review #1

Monitoring

If applicable, is monitoring appropriately designed (pre–post comparisons; treatment–control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	N/A
Rating	not applicable

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	The proposal clearly identified products for each task. The products were clearly and closely related to the specific activities and will contribute to larger data management systems independently of the proposed project. The products reinforce the cooperative/collaborative effort that the applicants have proposed. It could be worthwhile to "translate" some of the products into easily understood presentations/materials for agency decision-makers/budgeters to help get long term buy in and dedicated funding for the project.
Rating	excellent

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	The applicants have a strong track record and demonstrated accomplishments in this field. The
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Technical Review #1

	application documents strong linkages with the infrastructure and institutional support to successfully undertake this project. Because of their strong technical backgrounds and the importance of agency/stakeholder administrative buy-in, the applicants will need to pay special attention to recruit and communicate with the Policy Advisory Committee.
Rating	excellent

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	Generally the budget is reasonable and adequate for the proposed work. A few observations; the funds budgeted for Office/Presentation Supplies and Computers and Peripherals should be better justified. Based on the documented institutional support how much specialized/project specific supplies and equipment is appropriate to budget. Office supplies are generally an overhead expense unless justified further. Also, the travel budget is fairly small considering the importance of partner interaction and relationship development.
Rating	very good

Overall

Provide a brief explanation of your summary rating.

Comments	A very strong proposal to meet a well-documented priority need in California and elsewhere. The time line to be able to judge the project's success or failure is a major concern. Perhaps the applicants could modify this proposal into multiple independent phases that allow them to address discrete "tasks"; see if they are adopted, seek stakeholder funding to
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Technical Review #1

	maintain them and then use that success to go after funding for the next phase. This is an extremely important and ambitious task it would be regrettable to invest this amount of effort and funding in a project in the hopes that it would be implemented as "THE FRAMEWORK" in 5-10 years. Still, the applicants did a commendable job in justifying their approach.
Rating	very good

Technical Review #2

proposal title: Strategic Analysis Framework Initiative (SAFI): An Integrated Quantitative Understanding of California's Water to Support Future Decision-Making

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	This proposal seeks funding for extremely important efforts leading to the development of data, databases and analytical tools for modeling California water problems. The authors intend to facilitate collaborations among leading technical and policy experts throughout the state and capitalize on several existing and on going data / database efforts. A key element to this proposal involves the structural design and management of an organization that will foster collaboration of many agencies and groups. Ultimately, their work will be publicly available in a variety of electronic and published formats. These objectives were stated very clearly.
Rating	excellent

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Comments	The authors are clear in pointing out that the current available set of analytical tools and data for evaluating California water problems are dated and insufficient to meet current needs. CWEMF recently reported the need for
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Technical Review #2

	precisely what is proposed here. The authors are correct in proposing a project of this scale and time frame, suggesting data and modeling work stemming from this project would be available within 5-10 years. This demonstrates that the authors are well aware of the magnitude of the problem they are tackling.
Rating	excellent

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	The authors have assembled a cast of experts that will undoubtedly achieve the proposed goals. It is very likely, given their contacts and expertise, that they will meet their objectives for designing the strategic analysis framework within 18 months, developing the database and software interface within 34 months, and the analytical tools and final data products within 40 months of the project beginning. If these objectives are met, we will have a unique and effective framework for dealing with California water problems that is currently not in place.
Rating	excellent

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	The principle investigators are well known, accomplished and highly capable of carrying out this research. The proposed time-frame, management structure, and realistic goals virtually guarantee
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Technical Review #2

	success. At worst, in the unlikely possibility that certain elements of the project fail (i.e., database or software development) the authors will unquestionably communicate to the scientific community where the failings occurred. This, in and of itself, is an extremely valuable contribution.
Rating	excellent

Monitoring

If applicable, is monitoring appropriately designed (pre–post comparisons; treatment–control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	Each step in the proposed project includes collaboration with a variety of research groups for framework design, data quality control and database testing. All of the steps will be fully documented and transparent – a key to database development of this kind.
Rating	excellent

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	Data, databases and tools of the proposed kind are very much needed. While there are several small scale projects around the state geared toward meeting a subset of these needs, none are aimed at the long term goals proposed here. It is heartening to see that the authors propose to create transparent, fully documented products, including open-source software, so that others may easily use their data, database schemata and analytical tools. It is also encouraging to know that they do not rule out the potential use of easily accessible commercial tools to ensure the
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Technical Review #2

	success of their project. (A recent trend in scientific computing has lead to many open-source software development projects that have fizzled out after commercially available tools proved more useful.)
Rating	excellent

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	This is an all-star cast of researchers. Drs. Lund and Jenkins are clearly leaders in their field with the necessary contacts within the various participating groups and agencies throughout the state. Mr. Satkowski, Mr. McCoy and Mr. Johnson have each demonstrated their capacity for high-level work in publication and service.
Rating	excellent

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	Yes.
Rating	very good

Overall

Provide a brief explanation of your summary rating.

Technical Review #2

Comments	This research is badly needed and the assembled team of researchers proposing to do it could hardly be better. Throughout their project the authors suggest that their data and documentation will be subject to inspection and evaluation by external parties. Given the people and organizations involved, and the realistic goals, this research stands a very good chance of yielding important products.
Rating	excellent

Technical Review #3

proposal title: Strategic Analysis Framework Initiative (SAFI): An Integrated Quantitative Understanding of California's Water to Support Future Decision-Making

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	The goals and objectives are present, but could be clarified or presented in more detail. As written, it is clear what the program is designed to do, but the exact goals/objects are at times unclear. On page 2, it is unclear which group of bulleted items are the goals and objectives. A stronger connection is needed between the goals/objectives, research methods, and the data to be collected.
Rating	good

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Comments	A strong case is made justifying the need for analytical tools and quantitative data to assess water management in California. A clear statement of need, relevance, and the importance for such information is provided. A stronger tie to existing studies, research, and assessments would strengthen the proposal. A more direct presentation of specific types of data/measures that are needed would also help.
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Technical Review #3

Rating	very good
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Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	A general framework is presented that clearly explains how the project would be developed and implemented. However only limited detail is presented as to the specifics of data collection, data types, variables, concepts, and collection tools that will be utilized. Methodologically the proposal suffers from a lack of clarity and specificity. Nearly all of the tasks described on pages 4-10 lack the detail needed to ascertain how each step builds on each other and what data will be produced in the final product. Without such information, it is impossible to assess the reliability and validity of the data/methods and how it might benefit decision makers.
Rating	poor

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	In general the project appears feasible. However without a clarification of the data and collection methods, it is impossible to determine the likelihood of success/feasibility. The scale of the project, while large, is consistent with the goals and objectives. It would appear to be within the grasp of the authors. The proposal lacks the documentation,
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Technical Review #3

	technical structures, and detailed methodology to adequately assess the feasibility of the project.
Rating	fair

Monitoring

If applicable, is monitoring appropriately designed (pre–post comparisons; treatment–control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	Only very general measures of monitoring, reliability, and validity are presented. Included are group assessments of data content and reviews of collection methods scheduled for early in the project. Few long-term assessments/monitoring of methods and data collected are presented. The methodology for identifying reviewers and monitors is not developed. Without clarity of the data/variables measured, and the tools used to collect these, the utility of assessments is uncertain.
Rating	poor

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	The main product would be a substantial contribution that collects, organizes, and manages data reflecting water management in California. Interpretive/interpretable outcomes are likely to result from this project. These would likely be of use to practitioners at all levels. However without a better understanding of the exact methods for data collection and clarification of the specific types of data to be collected, the utility of products
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Technical Review #3

	developed is uncertain.
Rating	very good

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	The authors have a sufficient background, experience, and professional success to design and implement this project. They have available the infrastructure and other aspects of support necessary to accomplish the project.
Rating	excellent

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	The budget appears adequate considering the staff needs and extended lifetime of the project. A narrative describing and justifying the salaries of key personnel would strengthen the proposal, as would detailed information on the costs associated with software and other purchases.
Rating	good

Overall

Provide a brief explanation of your summary rating.

Comments	Overall this project represents an important and
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Technical Review #3

	timely effort. To better assess and determine water management options, a variety of quantitative data is needed. However, this proposal lacks the detail and specificity needed to adequately assess whether the methods would achieve their goals. A greater description of the specific data, variables, and measures, as well as pre/post test monitoring are needed.
Rating	fair